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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,976	02/15/2002	Xiangxin Bi	2950.18US02	1411

7590 09/21/2005

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Minneapolis, MN 55402-2100

EXAMINER

LE, HOA T

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/076,976

Applicant(s)

BI ET AL

Examiner

H. T. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Response to Amendment***

2. In the amendment (RCE) filed August 11, 2005, Applicants requested that amendment to claims filed April 11, 2005 and Request for Consideration filed July 1, 2005 be entered. Applicants are advised that the amendment has been entered as indicated in advisory action (in box 7) mailed April 26, 2005, and the Request for Consideration has been entered and considered as indicated in the Advisory Action mailed August 4, 2005.
3. Because the arguments filed July 1, 2005 have been responded by the examiner in the Advisory Action mailed August 4, 2005, and because Applicants do not submit any new amendment to claims or new arguments, no response from the Examiner is necessary. However, for Applicant's convenience, the detailed content of the Advisory action is reiterated in this office action under the Response to Arguments section below.

#### ***Response to Arguments***

##### **The 35 USC 112 Rejection:**

4. Applicants argued that it is inappropriate to put "forces of nature" in to a claim over which they have no control and the claim would be much more confusing if the language were added. Weak agglomeration by itself is unclear because the term "weak" is relative. So the force(s) that hold the nanoparticles in a weakly agglomerated form must be identified for the description of the weak agglomerates to be enabling. Consequently, these forces should

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be included in the claims for the claims to be commensurate with the enabling disclosure.

In addition, the term “weakly agglomerated” could also raise the issue of indefiniteness because the metes and bounds that constitutes a “weak” agglomerate cannot be ascertained.

5. The example that Applicants used in their argument (claim 1 of US Patent 6,543,543) is not analogous to the issue at hand. The claim 1 of the ‘543 patent does not pertain to the speed of the fluid movement; therefore, thus how the fluid moves is not an issue. On the other hand, in the instant case, the issue is the degree of the agglomeration, thus it’s critical how the nanoparticles are agglomerated. Thus, the forces that cause the nanoparticles to be held weakly should be identified or defined. Had the patentees of the ‘543 patent tried to distinguish their invention over the prior art reference by claiming that, in their pumping system, the fluid moves by a natural force while the fluid movement in the pumping system of the prior art references is quickened or slowed-down by application of some added artificial force, then Applicants may have an analogous case to support their argument.

6. Contrary to Applicants’ argument, identifying forces that hold the nanoparticles in weakly agglomerated form does not create confusion to the claims. As stated above, if the invention relies on the nanoparticles being weakly agglomerated by forces of nature as applicants have been arguing and because the instant specification only recognizes natural forces for the weakly agglomerating phenomenon of the nanoparticles, then the forces are critical for the claims to be commensurate to the enabling scope of the disclosure. In addition, without identifying the forces, it would be unclear what degree constitutes a “weak

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agglomerate” and how such weak agglomerates are different from the nanoparticles of the prior art references.

II. The Art-Based Rejection:

7. Applicants lamented that the Examiner’s analysis “has gotten off track” with regard to the 35 USC 102 rejection because “no one is asking” for the Wiederhofs patent to be invalidated. However, Applicants repeatedly contend that “the Wiederhofs patent does not disclose rutile titanium oxide particles with an average particle size less than 150 nm” (see Applicants’ responses on: October 2002, page 5, second paragraph; March 2004, page 7, last paragraph; October 2004, paragraph bridging pages 8 and 9; and April 2005, page 10, second paragraph). If the examiner were to agree with Applicants’ assertion when the Wiederhofs patent clearly states that it provides a particulate nanodisperse titanium dioxide having a particle size of 1 to 100 nm and by “nanodisperse titanium dioxide” it includes “rutilites” (col. 1, lines 7-13 and col. 2, lines 52-59), it would have the effect of invalidating the patent. What else would it mean if a patent is declared to not provide the product which its patentees claim to have possession of?

8. Applicants requested that “we need to understand what they have accomplished” by insisting that the titanium dioxide particles taught in the Wiederhofs patent are a result of sol-gel reactions and thus are not rutile titanium dioxide particles according to the claimed invention. The claimed invention relates to rutile titanium oxide particles with an average particle size less than 150 nm and no particles have a diameter greater than about four times the average diameter. The Wiederhofs patent states at column 2, lines 52-55 that “the

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present invention provides a particulate nanodisperse titanium dioxide having a maximum value of the particles size distribution of between 1 and 10 nm” and at col. 1, lines 7-10, it states, “For the purpose of the present invention, nanodisperse titanium dioxide is taken to be rutiles, anatases and amorphous titanium dioxide having a particle size of 1 to 100nm...” (emphases added). It’s puzzling why Applicants still insist that Wiederhoft does not teach Applicant’s claimed invention.

9. Applicants stated that “[a]pplicant’s specification is NOT directed to sol-gel materials of other solution-based synthesis” implying that the product taught in the Wiederhoft patent is a sol-gel material. First of all, how the materials are formed is not an issue here because the claims are product claims, not process claims or even product-by-process claims. Secondly, if the Wiederhoft patent clearly states that its teaching is a production of particulate monodisperse titanium oxide particles comprising rutile titanium dioxide particles of particle size from 1 to 100 nm, then the examiner cannot possibly dismiss these statements of the Wiederhoft patent as untrue in order to accept Applicant’s arguments that the process disclosed in the Wiederhoft patent is a sol-gel process and thus cannot accomplish the product it claimed to have accomplished. Doing so would be equivalent to invalidating the Wiederhoft patent.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 10:00 a.m. to 6:30 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



H. T. Le  
Primary Examiner  
Art Unit 1773